

# PATENT COOPERATION TREATY

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REC'D 24 FEB 2005



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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <i>*/</i>	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/IB 03/04857	International filing date ( <i>day/month/year</i> ) 30.10.2003 ✓	Priority date ( <i>day/month/year</i> ) 15.11.2002 ✓	
International Patent Classification (IPC) or national classification and IPC B29C49/74			
Applicant CONSTRUCCIONES MECANICAS MAER, S.A. ✓			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 5 sheets, including this cover sheet. ✓ 3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> <i>sent to the applicant and to the International Bureau</i> a total of 6 sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> ( <i>sent to the International Bureau only</i> ) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).			
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I      Basis of the opinion <input type="checkbox"/> Box No. II     Priority <input type="checkbox"/> Box No. III    Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV    Lack of unity of invention <input checked="" type="checkbox"/> Box No. V     Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI    Certain documents cited <input type="checkbox"/> Box No. VII    Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII   Certain observations on the international application			
Date of submission of the demand 04.05.2004 ✓		Date of completion of this report 25.02.2005	
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Kosicki, T Telephone No. +31 70 340-3432 	

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/IB 03/04857

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1, 4-8 as originally filed  
2, 3 received on 27.07.2004 with letter of 21.07.2004

**Claims, Pages**

9, 9a, 9b, 10 received on 04.12.2004 with letter of 30.11.2004

**Drawings, Sheets**

1/4-4/4 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☒ the claims, Nos. 6
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-5
	No: Claims	
Inventive step (IS)	Yes: Claims	1-5
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-5
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

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**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following document:  
D1: US-A-3448648
2. The set of claims filed the 30.11.2004, received 4.12.2004, has an obvious error, namely that **claim 1** stops with the word "comprises" and doesn't indicate where the rest of the claim has to be found. It is obvious from the above filed application documents that submitted page number 9a contains the missing characteristics of claim 1. For the benefit of the procedure in this International Preliminary Examination Report claim 1 will be interpreted as containing the features mentioned in claim 1 as well as all the features mentioned on page 9a (see PCT Guidelines 8.09).
- 2.1 The document D1 is regarded for being the closest prior art to the subject-matter of **claim 1**, and discloses (the references in parentheses applying to this document) a machine (Figure 4) for the cutting of double-bodied bottles (2) attached to each other at the neck (12), which comprises means for advancing (Figure 6, column 4, lines 49-60 and claim 11, 12) the bottles (4) and a bottle-neck cutting device (claim 1).

The subject-matter of claim 1 differs therefrom in that said cutting device comprises means for rotating around their axis of symmetry a pair of parallel oriented rotary plates, a pair of arc shaped blades, which are orientated in parallel to the plane of said rotary plates and distanced in such a way that the double-bodied bottles can fit between the arc shaped blades and the rotary plates, a plurality of drive pulleys, which are parallel arranged to the axis of the rotating plates, and which in operation contact the neck of the bottles, whereby said rotary plates comprise a plurality of perimetral housings which are arranged in such a way that they can move the bottles, following a circular route, towards the arc shaped blades so that a cut is made around the entire outline of the neck of the bottles, and whereby said pair of pulleys, are arranged in such a way to ensure that the bottles rotate about their own axes, and that the bottles are pressed against the arc shaped blades.

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Therefore claim 1 fulfils the requirements of Article 33(2) PCT.

The problem underlying the combination of apparatus features contained by claim 1 can be seen in speeding up the cutting operation, cf. page 3, lines 11-13.

The solution proposed in claim 1 of the present application cannot be considered as being suggested by the cited prior art, since no hint could be found to provide the combination of features as set out in the characterised portion of claim 1.  
Thus the requirements of Art. 33(3) PCT are fulfilled.

3. **Claims 2-5** are dependent on claim 1 for which reason they also meet the requirements of Article 33(1)-(5) PCT.

**Re Item VIII**

**Certain observations on the international application**

1. **Claim 1** is not supported by the description on page 3 as required by Article 6 PCT.

<\*> US-A-3448648 describes an apparatus for trimming hollow articles which includes means for clamping the articles in a predetermined orientation and a cylindrical knife assembly which passes over the clamped articles to sever a flange or the like on the articles.

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contact with the support tracks and another with the drive belt. Furthermore, in order to implement the cutting of the bottles there has to be a certain space between them, since the bottle has to be able to rotate freely as the cut is being made, with no means other than the tracks and the drive belt in contact with it. All these factors have an adverse effect on productivity, as the bottles often fall over or their path deviates at the cut is made. Moreover, the limited cutting speed and the space that has to be left between one bottle and the next also reduces the output of the system.

This system further requires the cut to be made in a straight line, so that the machine takes up a considerable amount of space.

<\*>  
15 In order to resolve these disadvantages a choice has sometimes been made in favour of heating the blade so that the plastic material of the bottles melts as the cut is being made. This achieves reduced friction between the blade and the bottle, and the cut can be made faster.  
20 After the cut, however, and due to the melting of the material carried out by the blade, the bottles have a burr at the mouth that subsequently has to be removed, which involves increased costs and extra manufacturing time.

25

#### DESCRIPTION OF THE INVENTION

The objective of this invention is to resolve the disadvantages of the devices known in the prior art, while further providing additional advantages that will become clear from the description that follows.

<\*> towards the blades as the drive pulley, ensure that the bottles rotate about their own axes and press them against  
<\*\*\*> defined by being

3

The horizontal cutter of the invention for double-bodied bottles attached to each other at the neck is of the type that comprises means of advancing the bottles and a bottle-neck cutting device, and is characterised in that  
5 said cutting device comprises a pair of blades, a pair of rotating plates for drawing the bottles along and a plurality of drive pulleys in contact with the bottles, so that ~~as the rotating plates move so too do the bottles at the same time rotating about their axes and in contact~~  
10 ~~with the blades.~~

<sup><\*></sup>  
Thanks to these characteristics the bottles are made to move and to rotate about their own axes, this facilitating and speeding up the cutting operation.

Moreover, unlike other machines, the bottles follow a  
15 circular route and not a straight-line path at the time of the cut, which means that the space occupied by the cutting device is reduced substantially.

According to one embodiment of this invention, the profile of the drive pulleys and of the blade carriers is  
20 complementary to that of the necks of the bottles. <sup><\*\*\*></sup>

The bottles are thus guided by the blade carriers, rendering impossible any deviation or falling of the bottles that could cause a stoppage or fault in production, while also improving the precision of the cut.

25 According to another embodiment of this invention the rotating plates comprise a plurality of perimetral housings for the bottles.

These housings allow the bottles to be well-positioned throughout the cutting operation.

30 Advantageously, the cutting machine comprises a pressurised air conveyor for moving the bottles,

## CLAIMS

1. Machine for the cutting of double-bodied bottles (3) attached to each other at the neck, which comprises means  
5 (2) for advancing the bottles (3) and a bottle-neck cutting device<sup>(1)</sup> characterised in that said cutting device  
(1) comprises ~~a pair of blades, a pair of rotating plates~~  
(4) for drawing the bottles (3) along and a plurality of drive pulleys (9) in contact with the bottles (3), so that  
10 as the rotating plates (4) move so too do the bottles (3), at the same time rotating about their axes and in contact  
~~with the blades (7).~~ /

2. Machine, according to Claim 1, characterised in  
15 that the profile of the drive pulleys (9) and of the blade  
(7) carriers (8) is complementary to that of the necks of the bottles (3). <\*>

<\*> defined by being

~~3. Machine, according to Claim 1, characterised in~~  
20 ~~that the rotating plates (4) comprise a plurality of~~  
~~perimetral housings (5) for the bottles (3).~~ /

3~~4~~. Machine, according to Claim 1, that comprises a  
pressurised air conveyor (2) for moving the bottles (3),  
25 ~~characterised in that this conveyor (2) comprises a guide~~  
(13) provided with two lower rails (14) and two upper rails (15) which are in contact with the bottom of grooves  
~~in the bottle necks.~~ / <insert page 96>

30 4~~5~~. Machine, according to Claim 3, characterised in that the housings (5) are separated by spoon-shaped teeth



9a

means for rotating around their axis of symmetry a pair of parallel oriented rotary plates (4), a pair of arc shaped blades (7), which are orientated in parallel to the plane of said rotary plates (4) and distanced in such a way that the double-bodied bottles (3) can fit between the arc shaped blades (7) and the rotary plates (4), a plurality of drive pulleys (9), which are parallel arranged to the axis of the rotating plates, and which in operation contact the neck of the bottles (3), whereby said rotary plates (4) comprise a plurality of perimetral housings (5) which are arranged in such a way that they can move the bottles (3), following a circular route, towards the arc shaped blades (7) so that a cut is made around the entire outline of the neck of the bottles (3), and whereby said pair of pulleys (9) are arranged in such a way to ensure that the bottles (3) rotate about their own axes, and that the bottles are pressed against the arc shaped blades (7).

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towards the housings (5) of the plates (4) by means of pressurized air that circulates inside the conveyor, characterised in that this conveyor (2) comprises a guide (13) provided with a first pair of rails (14) situated in  
5 the lower part of the guide and a second pair of rails (15) situated in the upper part of the guide, so that grooves present in the neck of the bottles (3) are positioned between said lower (14) and upper rails (15).

10

(6) in order to facilitate positioning of the bottles (3) inside said housings (5).

5 5/. Machine, according to Claim 1, characterised in  
5 that it comprises at the cutting device (1) outlet section  
three ramps (12), two of which gather the two cut bottles  
(10) while the third gathers the intermediate dome (11)  
resulting from the cut.